LETTERS FROM CHARLES SPRAGUE SARGENT TO REGINALD SOMERS COCKS, 1908–1926 *

Edited by JOSEPH EWAN

82

May 6, 1915.

You sent us leaves of *Malus* from Sardis under three numbers — 1, 2 and 3. These appear to us, however, to be all the same thing and until I went to Selma I thought they might be a form of *Malus ioensis*, but I collected flowers on the road between Selma and Sardis which look very much like the flowers of *Malus platycarpa*. Now what we want is the fruit to make the determination certain. I suppose you can manage that this summer. I was surprised to find *Persea palustris* so common about Sardis as I did not know it ever got so far into the interior.

I had a letter from Palmer this morning in which he said things were coming out very rapidly and he thought *Tilia* would be in bloom in a week. I hope therefore you will bear in mind the collections of flowers at Lake Charles and Avery Island. Palmer says there are more different kinds of trees and shrubs about Natchitoches than any place he has yet visited, although *Crataegus* is not represented there by many groups.

How about the name for our Lake Charles *Carya*? I want to write the description and am depending on you for a very fancy and first-class name.

P.S. — There is a man here now preparing a monograph of *Smilax*, so if you have any doubtful specimens we had best see them. Your *Smilax* 91 from Wakefield, June 1907, is *Smilax lanceolata*.

83

May 12, 1915.

What is the *Tilia* situation? Of the three Lake Charles species we have flowers only of #2 and no fruit of 1, 2 and 3. Of the Sardis species which grows on the river bluff, your #6 of 1914, we have flowers and fruit. Of your other species (#1110) we have specimens only in very young bud, but a specimen of yours (no date and no number) is in flower; the label says "the neighborhood of Selma". This is the tree I found at Selma but did not see at Sardis where I suppose you did not see it. I hope you will be able to manage the fruit of this second species this summer. It certainly ought to be pretty fully grown before you return to New Orleans.

Pretty bad times these but there is no use thinking about them when there are trees to think of.

* Continued from volume 46, p. 44.

84

May 21, 1915.

I congratulate you on having found such a fine tree as *Magnolia acuminata* in Louisiana. I do not think it is surprising that it should be there but rather that it should have been overlooked so long. Please tell me the exact place where you found it, town if possible, so that I can enter it properly in my Manual.

This does not seem such a remarkable discovery as the finding by Harbison of *Magnolia* in northeastern Mississippi. He is finding a great many interesting things in that state and it would not surprise me if *Carya pallida* reaches eastern Louisiana as he finds it so abundant in western central Mississippi. You ought to make a special hunt for this in West Feliciana.

Carya callicoma I think sounds good and I am much obliged to you for the suggestion.

85

June 2, 1915.

I have written out the description of *C[arya] callicoma.* Your #15 from Natchitoches, with very young leaves, looks as if it might be this species. I do not suppose you remember much about it.

Is it possible that the Winnfield trees "in dry woods", that is near the quarry, with young leaves pale tomentose below, can also be *callicoma?* I think Winnfield needs more investigation as to its Hickories.

Your #1 Lake Charles, October 1913, is of course the same as your tree from the man's yard, and undoubtedly *C. arkansana.* There is fruit which probably belongs to this species collected "near English Bayou" where we did not see *C. arkansana.*

#11, 12 and 16 Natchitoches are *C. arkansana,* and #3 from Grand Ecore is probably the same.

I hope soon to hear from you about *Tilias.*

86

June 14, 1915.

I am glad to get your letter of the 10th of June which has arrived just as I was going to write to tell you that among some specimens of *Tilia* sent by Palmer are three numbers from Lake Charles and all apparently our #1. He seems to have missed the other two numbers, at least there is no trace of any pubescence whatever on these specimens. They were gathered too soon but among the lot there are one or two open flowers. I very much hope therefore you have been to Lake Charles and have got the flowers of our three numbers. I should judge that you might have been too early at Avery Island as I have received from a young lady there specimens of what she calls the smooth and rough-barked trees. The flowers, however, will answer our purpose after a fashion.

Is it possible that *Liriodendron* does not reach Louisiana? I have no record of it there and no specimen.

Can you tell me the range of *Quercus velutina* in Louisiana? While at Sardis you will look out, of course, for that peculiar *Quercus coccinea* with the deep cups. It will be interesting to know if this is a common form or only the peculiarity of an individual tree. I do not know what to say about that little Post Oak about Selma in which Harbison is so much interested. The leaves are very tomentose on the lower surface but I do not see that, except in habit, the shrub differs from the large trees in Selma. You have, I hope, the memorandum of the two Plums we found in flower near your place and south of Selma.

As I think I told you, I am trying to arrange the Hickories largely on the absence or presence of yellow scales on the leaves and on the involucre of the pistillate flower and fruit. I had supposed that these yellow scales did not occur on the pistillate flowers and young fruit of *Carya alba* until the other day when I received from Harbison specimens collected in Mississippi of what otherwise looked like *Carya alba*, but the young fruit was thickly covered with yellow scales. Such scales certainly do not occur on our tree as it grows here, and it is possible that the northern and southern trees ought to be separated. All this is preliminary to a request that you will look at *Carya alba* in the Selma region and see how the young fruit looks, and possibly dry me a few specimens, especially if you find the yellow scales.

Instead of going to North Carolina why don't you come to Brookline and do some work on the synonymy and bibliography of your Flora?

87

June 23, 1915.

I never received a more interesting package of plants from you than the one which arrived this morning — very many thanks.

Quercus 800 is surely Small's *Quercus austrina* which we have been hunting for so long and is evidently a good species. Would n't it be possible to get fruiting specimens?

802, *Quercus coccinea*. Is this the tree on the bank with the peculiar cups I wrote you about?

804, *Quercus nigra*. This is a distinct form with thicker leaves which are usually three-lobed at the apex. I saw a good deal of it between Selma and Sardis, and I think it ought to have a varietal name.

Tilia 788, Sardis, with leaves pale and glabrous below and prominent axillary tufts, seems to equal 2528, West Feliciana, and probably our 2 of Lake Charles. This I think is a common and widely distributed species in the southwest.

Tilia 784 and 786, leaves green and glabrous below, axillary tufts very small, looks like 2534 of Lake Charles.

780, 782, 790 and 792, the *Tilia* with leaves white pubescent below.

It would seem as if there were three and not two *Tilias* in the Selma-Sardis region as I had supposed. I only saw two last spring.

Acer 2520 seems to be a form of the Sugar Maple which is common in southern Georgia and in Mississippi. The leaves are paler on the lower

surface but I can see no other difference. We have never had flowers or fruit of this.

Quercus 2524, *pagodaefolia.*

Quercus 2526, *Q. alba.*

Tilia 2530, "#1, Lake Charles," on English Bayou at Miller Place. This has leaves densely pubescent below, but our #1 from Miller Place with checkered bark, collected April 12th, is perfectly glabrous.

Tilia 2536 is our #2 of April last.

Tilia 2534, bark like a Persim[m]on, is our #1, although you say #2?

I do not think we collected your 2530 at all. The pubescence is more rusty than that on the leaves of our #3. This new Lake Charles tree may be one of the Avery Island species. Did you find it on the Miller place?

You do not appear to have collected this time our #3 which has leaves white-pubescent below. The trees near the schoolhouse in West Lake Charles and the tree by the river bank in Lake Charles are our #3. This seems to be a common species and no doubt Palmer has the flowers.

Let me hear soon what else you are finding of interest at Sardis which seems to be an inexhaustible field.

88

June 28, 1915.

The *Ptelea* which we collected at Lake Charles in March 1911 looks exactly like the *Ptelea rhombifolia* of Heller and I think should be referred to that species, at least until we know more about the different forms of this troublesome genus. From eastern Louisiana I have one specimen of *P. trifoliata* collected by you but no other *Ptelea* at all from Louisiana. Have n't you met with the genus in other places in that state, and how does it happen that Selma and Sardis, which contain almost every other known plant, cannot boast of a *Ptelea*, at least there is nothing from that region in our herbarium?

89

July 2, 1915.

Very many thanks for the fruit of *Carya alba* which tells me just what I wanted to know. It is surprising that these yellow scales on the fruit of this species have always been overlooked. Perhaps, however, this is not more remarkable than that every American botanist has described the fruit of *Epigaea repens* as a dried capsule although it is really a fleshy berry.

There is no one now in this country who knows so little about *Tilias* as I do, but I should think Palmer could look after the fruit of the Lake Charles species this autumn. As you have read in my last letter, there is what appears to be a fourth species there. Undoubtedly the West Feliciana species are the same as those which grow at Natchez and I do not think you need to worry much more about them. This leaves Avery Island from which we certainly ought to have good fruiting specimens. I wrote to the

lady who sent the specimens the other day from there, asking her to send me a specimen of one of her numbers showing the young branches but I have had no answer from her. I have no more idea than you do when the fruit of these things ripen.

The Scarlet Oak which I want you to look into is a single tree growing on the edge of the bluff, or rather a little way back from the edge. We went from your place to a store, the post-office of Sardis I think, and then took the road to the river. We got out at a negro cabin near the river, walked across a field, and then turned to the left and followed along the cliff for some distance. This particular Oak cannot be more than three hundred yards from where we reached the bluff. The remarkable thing about this tree is the much swollen scales of the cup. If this sort of Scarlet Oak is common in the Sardis region, then it ought to be made a variety of *Quercus coccinea*. I think perhaps I had best send you one of the fruits we picked up under the tree. As you know, *Quercus rubra* also grows on this bluff, and very far south of any station I have known for it before.

How about the two Plum trees of which I wrote you? I hope you will follow them up, and also *Quercus austrina*. We should be glad to get specimens of any of the woody plants growing about Sardis which you may have time to make.

90

July 22, 1915.

You have n't said anything about having collected at the time of your last visit to Lake Charles fruiting specimens of that remarkable Ash tree with pendulous branches which we saw there. If you did not collect fruit I can ask Palmer to get it when he goes there this autumn. How early do you think the tree is likely to drop its fruit, and can you give any specific directions for finding the trees? We only saw one tree, as I remember, with fruit on it and that was hanging over a cottage close to the road. This of course was as we went down the lake (not towards the bayou) but I should not know what to tell Palmer in order to find this particular tree.

Anything new in the tree line at Sardis, and have you given up the idea of coming north this summer?

91

July 23, 1915.

How about the Slippery Elm, *Ulmus fulva*, in Louisiana? It is common from Missouri to Texas and it ought at least to be in western Louisiana, but I have no knowledge of it there.

92

July 29, 1915.

A new tree for the Selma region is *Carya carolinae-septentrionalis* which Harbison collected there this spring.

Why can't you send me now a specimen of the White Oak near your

place which we thought was *Quercus austrina?* I should like to see it in its present summer condition. It might be sent without drying I should think.

93

August 7, 1915.

I have your letter and the package of specimens, for both of which many thanks.

Acer 820 and 828 are *A. saccharum*. This form with leaves pale and pubescent below appears to be a rather common tree from southern Georgia and northern Florida to Mississippi. *Acer* 822 is *A. floridanum*.

Carya carolinae-septentrionalis is right. I have already written you that Harbison had found it near Selma.

Quercus 814 looks as if it might be a hybrid of *Q. imbricaria*. Do you know more than one tree? We ought to know more about it and get more material.

Quercus 812 Sardis must be *Q. Durandii*. Is this the small tree on the left-hand side of the road going from your house towards Sardis and at the foot of a rather steep hill where our motor got stuck? This was the tree we took for *Quercus austrina*. Please answer this. If your 812 is not our little tree, where does it grow? Have you noticed on 812 that the leaves on the lower branches are very different from those on the upper part of the tree?

Is your *Quercus* 800 the same as the 804 mentioned in your letter? 800 looks as if it might be the mysterious *Q. hybrida* of Chapman.

The *Tilia* cultivated at Lake Charles is *Tilia tomentosa* from Hungary.

I saw only two Lindens in the Selma-Sardis region but there are evidently three species, — 1st, the tree with leaves silvery pubescent below, your 780, 782, 790 and 792. 2nd, the tree with very coarsely serrate leaves, your 784 and 6 of July 1914. I did not find this tree and I do not know if the young leaves are all pubescent, and I am afraid that you do not. 3rd, the tree with leaves not so coarsely serrate as #2, covered below with pale stellate hairs in April and in June entirely glabrous with the exception of the conspicuous axillary tufts. This is your 788. 786 is the same but without the tufts. This was the only Linden I saw on the bluffs of the river at Sardis but I saw plenty of #1 south of Selma.

I think now, thanks to you, that we have complete material of these three Lindens. Can't you induce your friends at Avery Island to collect good fruiting specimens of Lindens there? There are probably two species, one a tree with pubescent branchlets and rusty pubescent leaves which are very scabrate above, your #6 of October 1910. I do not know that we have either flowers or fruit of this. It seems similar to the tree from the coast of Georgia which has passed for *T[ilia] pubescens*, but I daresay it is not that species. Two, a tree with leaves pale pubescent below and also rough above. This is Miss McIlhenny's smooth-barked Linden and your specimen of May 24, 1914. Can this be the same as #1? The difference in the time of year when the specimens were taken may account

for the different color of the pubescence. Miss McIlhenny's rough-barked Linden may be the same as #1 but the specimen is so poor that it does not tell much.

Palmer is now in St. Louis arranging his collection and I am afraid cannot get off much before the first of September, but I shall write him to get back to Louisiana as soon as possible. The Florida and Alabama Oaks seem to be as puzzling or more puzzling than the Lindens.

I wish you were here now for I am living all alone and we might get through a great deal of work together.

94

August 10, 1915.

I have received from you a box of Plum fruit but no word as to what it is. I suppose I should hear from you on this subject.

Your Wakefield, West Feliciana "Tilia americana," June 1907, is evidently the same as Selma #2, and the same as your specimen collected near Alexandria June 1905.

I cannot quite follow you on the Lake Charles *Tilia*. Your #2532 with pubescent branchlets and leaves pubescent below agrees with our #3 of last spring, but your #1 from the Mills' place (#2530) has the same pubescence as your number 3 (2532) although the branchlets are glabrous. Now unless there is a bad mixup on my part it is impossible that the tree in Mill's yard which had perfectly glabrous leaves on April 12th should on May 21st have leaves densely pubescent below.

I am writing Palmer today to get off as soon as possible and go first to Lake Charles for evidently there is no Linden at Natchitoches which does not also grow at Lake Charles. I hope you are hunting Oaks.

95

August 19, 1915.

Many thanks for your two notes and the information they contain. I hope you will continue to watch the Oaks at Sardis. You have said nothing about that peculiar form of *Quercus coccinea* about which I wrote you.

If the leaves of *Tilias* are going to change from glabrous to pubescent as they grow older I am afraid it will be hopeless to find characters by which they can be separated.

Too bad about Avery Island for I suppose the weather won't become cool there or mosquitos disappear until it is too late to collect Tilias.

I hope the cotton crop is going to be a success.

96

August 21, 1915.

I enclose a leaf of an Oak which Harbison found at Pleasant Hill, near Selma, and which may be an extreme form of *Quercus Durandii*. He found similar trees at other places near Selma, and I have asked him to write and give you as near as possible the locality of these trees in the hope that

you will be willing to investigate them before you leave Alabama and obtain mature specimens. According to Harbison Pleasant Hill is a very interesting place, and possibly you may like to visit it.

97

August 23, 1915.

Many thanks for yours of the 19th and for the Plums which have not yet arrived but which I suppose will be here tomorrow. It seems to me that this is about the worst of all the groups of our woody plants.

We are sending you by express to Tulane a set of woody plants collected in Louisiana by Palmer this year, or rather nearly a full set for I understand he has been obliged to leave some of them behind him at St. Louis in his pursuit of *Tilia* fruit. I will arrange that the herbaceous plants be sent from St. Louis.

I take no responsibility for Palmer's names, and a few of them appear to be incorrect. Notice his *Quercus* 7473 with leaves only from Natchitoches, which looks as if it might be *Q. Durandii*. His *Quercus* 7448 from Natchitoches seems to be the three-lobed form of *Q. nigra* common between Selma and Sardis. It needs a varietal name. His *Q. stellata* var. Grand Ecore 7518 and Chopin 7978 we are much interested in here. The pubescence seems to be like that of the Post Oak in Selma. I do not know if I wrote you about this tree and the importance of collecting fruit of it this autumn, as well as the little dwarf Oak in sandy soil near Selma which is evidently a dwarf form of the larger tree. Palmer makes a point that the bark of his tree is scaly like that of the White Oak and not rough like the Post Oak. Is this true of the Selma tree?

Palmer's *Quercus velutina* 7443 is stellate-pubescent on the upper surface of the leaves. This sort of pubescence so far as I have seen never occurs on the leaves of the straight *velutina* but is conspicuous on the variety *missouriensis* of mine from Missouri and Arkansas. On the Missouri tree, however, the branches are much more tomentose than Palmer's 7443, but in Mississippi and Florida there is a *velutina* without tomentose branches but with stellate pubescence on the upper surface of the leaves at least early in the season. This may be another variety. It has not yet turned up in Alabama and I hope you will be able to look at the *velutinas* in your region and see if you can find any trees with such stellate pubescence. Harbison claims that the trees in Mississippi with the stellate pubescence do not have the orange colored inner bark. This is a fact, however, which needs further investigation.

98

October 20, 1915.

Many thanks for your letter of October 15th. No, I have n't been ill but away on several short journeys this autumn and my correspondence has fallen into a hopeless condition of neglect. I was on the point of writing you when I heard of the storm in Louisiana but did not get around to it. I hope you did not suffer personal inconvenience, but I am afraid

many of our trees at Lake Charles were destroyed. I hope, however, the Hickories are all right.

Have you been out this autumn with Palmer? He wrote me that you thought of doing so. I have n't heard from him for some time and I fancy that he is now in eastern Texas or Oklahoma as he went early from Louisiana. I am sorry to say that he found that many of the Lindens from which he collected in the spring were blown down early in the summer.

Please let me hear from you soon.

99

November 1, 1915.

Many thanks for the collection of Oaks from the Selma district. The more I see of these Selma Oaks the less I know about them and this last collection of yours seems to me the worst lot I have seen.

904 is *Crataegus tomentosa*. The other specimen of *Crataegus* in fruit I do not know.

950. I do not know this Oak. Is it some form of the Water Oak? Do you remember the tree?

954. *Quercus velutina*.

972. *Quercus austrina*, if there is such a thing.

962 I suppose is the dwarf form of the new Post Oak with scaly bark. As you know, this also grows at Natchitoches.

934. Is this not the common Post Oak? It shows none of the pubescence which is so conspicuous on the under surface of the leaves of the new Post Oak. How is the bark of this 934?

952, 968, 960 and 932 seem to be *Q. Durandii*.

930. Is this *Q. austrina* again?

938 looks as if it might be a hybrid of *Q. imbricaria*. It is unknown to me.

956 is the new Post Oak.

958 is nearly glabrous and I suppose is the common Post Oak.

I am going to take up the Oak question seriously when Harbison's collection of the past autumn arrives and try and come to some conclusion about some of these troublesome southern species, varieties or hybrids. It is rather curious that this scaly barked Post Oak grows at Selma and then not again until we get to Natchitoches. By the way, Palmer writes that he thinks he has found *Gleditsia texana* at Natchitoches. This would be a new tree for Louisiana. Apparently anything can be expected in the Natchitoches region.

I hope you are all right.

100

November 12, 1915.

We have been able to raise two new Chinese *Citrus* plants which may prove useful. The first of these, *Citrus ichangensis*,[10] has fruit something

[10] Burkill includes this in *C. macroptera*, as a race of thick-skinned shaddock-like *Citrus*.

like a grapefruit although rather smaller. Some persons think that the fruit has even a better flavor than that of grapefruit but this of course is doubtful. The great point about it is that it is likely to be much hardier than the grapefruit or any other *Citrus* plant with edible fruit. The fact that our plants are raised from seeds gathered from wild plants growing in the mountains of western China suggests that the plants may be freer from disease than many of the long cultivated forms. The second plant is an Orange and still unnamed. It is said by Wilson to be the best of the tight-skinned Oranges of China. It is a low level plant in the Yangtse Valley but should prove hardier than the ordinary cultivated Orange. I could send you fifty or one hundred plants of each of these if you can use them to advantage among your friends in Louisiana. I think these trees should be introduced. Let me hear about this as soon as you conveniently can.

101

November 22, 1915.

I have yours of the 20th and you may be sure we shall send you a set of Palmer's plants as soon as they arrive. He is now working on them in St. Louis and I expect something from him very soon.

It would certainly be remarkable if you have found *M[agnolia] cordata* in Louisiana. As you know perhaps, it has recently been rediscovered in Georgia. If you have specimens of the leaves I should like to see them as they throw some light on the identity of the plant.

We are arranging to send you two hundred and fifty of the Ichang Orange and two hundred and fifty of the Ichang Lemon for distribution among your friends in Louisiana. We can send more if you want them. The Arboretum will take the liberty of paying the express charges on the case to New Orleans as you ought not to be put to any expense in this matter.

102

December 7, 1915.

The *Citrus* fruit started from here last night in two cases by express and I have no doubt will reach you in good condition. They have been inspected and I do not think there can be anything the matter with them. Now if you can use more of these plants to advantage in Louisiana we can send them to you. I am anxious, of course, to get them as widely distributed as possible. I advise you to try a few of *Citrus ichangensis* at your place in Alabama. This ought to prove, judging from the locality where the trees grow naturally, the hardiest of all the *Citrus* species with edible fruit. If you want more you better let me know soon before winter really sets in.

Crataegus 964 from Sardis, 1915, is evidently *C. tomentosa*, although I have n't seen the flowers, and the same as your 14 Sardis, 1914. These are the only Alabama specimens of this widely distributed tree we have

and I have no other record of its extending into Alabama, so this is another tree the distribution of which you have greatly extended.

103

December 14, 1915.

I have just been looking over the Louisiana specimens of *Malus*.

Your Pineville specimen, our #1 west of Opelousas, the Crowley specimens and your specimens collected at Natchitoches April 15, 1911 and April 15, 1912, and Palmer's Natchitoches 7252 we are placing with *M*[*alus*] *ioensis* var. *Palmeri*. This leaves now only our Malus #2 west of Opelousas, a tree thirty feet high with red-brown bark. This is certainly something different. It may be an extreme form of *M. angustifolia* but I hardly think so. I had supposed you collected flowers but I do not find them, although you visited the tree the second time to collect fruit. The flowers if possible should be collected in the spring.

I have just written Harbison that we have n't got to the bottom yet of the Selma-Sardis species of *Malus* and I hope he will visit that locality again next spring.

104

December 16, 1915.

In writing you yesterday I made a mistake, of course when I said we had referred your Pineville *Malus* to *ioensis* var. *Palmeri*. It is, of course, the type of *ioensis creniserrata*.

105

December 18, 1915.

I am very glad indeed to hear that the *Citrus* plants reached you in good condition. We have plenty more of them and I shall be glad to send you another supply if you can use them to advantage. I do not suppose the Orange is going to prove of much value but the so-called Ichang Lemon I believe will turn out to be a plant of much economic value.

Yes, I remember about the *Crataegus* from Louisiana and will get to it before long I hope.

Ashe is a man who is apt to make a good deal of trouble and I suggest that you be cautious about sending him material. He has a way of not keeping specimens on which he makes species and then forgetting them himself. How about the *Magnolia cordata*?

106

December 22, 1915.

We have no specimen of *Quercus cinerea* collected in Louisiana by you, and only one specimen in the state recently collected at Natchitoches by Palmer. Does not this tree occur in eastern Louisiana and have n't you seen it in other places in western Louisiana?

107

December 31, 1915.

I have been looking over your Sardis specimens of *Quercus*.

#800 with "bark like the White Oak" is what Harbison feels sure is Small's *Q. austrina*, but the old fruit which you picked up from the ground with this specimen is probably *Q. texana*. The following are also *austrina:* 804, 958, 956, 930, 950, 934, 902, 932. This seems to be a good species and to be widely distributed. You ought to find it in eastern Louisiana.

944, 960, 972, *Q. Durandii*.

898 and 912, *Q. coccinea*, new variety.

942?, 900, *Q. rubra*.

914, Sardis, looks like a hybrid and should be followed up. I cannot guess at its parentage.

932 might be *Q. Durandii* or *austrina*. It is sometimes very hard to distinguish these from leaves alone.

802 I take to be *Q. texana*.

2524, near St. Francisville, Louisiana (no fruit) must be a form of *Q. falcata*.

This is enough for today.

108

January 8, 1916.

I have your note about *Quercus austrina*. I confess that without acorns I cannot tell *austrina* from *Durandii* with any degree of satisfaction. Apparently what we are calling *austrina* according to Harbison is sometimes a large tree, and the tree which he considers *austrina* certainly always has scaly bark. Small, as you know, is often rather vague in his descriptions. Probably there is a good deal more to learn about these trees. P.S. — Do you know anything about an Oak collected by you in St. Tammany, July 1900, No. 6, and called by you *Quercus tomentosa* or *Q. velutina*? It is not that species and the leaves are good Red Oak leaves, and the fruit is good *coccinea* fruit. It is probably a form of the Red Oak with cups shaped like the northern form (*Q. ambigua* or *borealis*). I should think this was a tree worth further investigation.

109

January 13, 1916.

I enclose a leaf of an Oak specimen gathered by you in New Orleans in October 1911. Was this tree planted? This is the same tree as the one which is growing at Natchez, Mississippi, and of which Harbison has found a single planted individual by an abandoned house near Selma. With the leaf is an acorn from one of the Natchez trees. At Natchez most of the leaves are still on the trees and perfectly green, so that if this tree has been planted in the streets of New Orleans you ought to be able to recognize it at this time. The same species grows on the Texas coast and it would be surprising, I think, if it does not turn up in West Feliciana.

It is certainly an undescribed Oak and one of the largest Oaks of North America. It is well worth hunting for, therefore, in Louisiana. I have only just found out about the persistent leaves which add a good deal to the interest of the tree.

I enclose also a copy of Buckley's description of his *Quercus Shumardii* which has always been overlooked or disregarded. Judging from his description, it is a tree with foliage a good deal like that of *Q. texana* but with cups as shallow as those of the Red Oak but covered with very thick scales. I enclose a couple of cups of what I suppose is this tree from Fulton on the Red River in Arkansas. Our *Quercus texana* collected last April at Lake Charles may be this tree, and Palmer appears to have found it at Natchitoches and Grand Ecore. Your Sardis 1906 and 1915 may be the same thing.

I doubt if 1900 and 942 of Sardis are *Quercus rubra*, but your Sardis specimen of August 1913 is certainly this last. The trees which I think are *Shumardii* have more deeply lobed leaves than *Q. rubra* and large and very conspicuous axillary tufts of hairs on the lower surface. Typical *texana* has deep cups with thin scales.

Unless some character besides the shape of the cup and the thickness of their scales can be found to separate *Q. Shumardii* from *Q. texana* I should think that the former was a variety of the latter, but this group needs a great deal more observation in the field. It is true that *Q. rubra* evidently grows in Feliciana, but I do not feel at all sure that it is in western Louisiana. It is important to collect more material of the Red Oak group about Sardis if you are there again, and particularly in Louisiana.

I am writing to Palmer to pay especial attention to it in Arkansas, Oklahoma, western Louisiana and Texas this year. I should think that the Oaks of West Feliciana especially needed attention. I feel almost sure that you will find the new Natchez species there. If this tree from New Orleans, of which I now return a leaf, was planted where did the trees come from? Probably not very far from the city. This, however, is not a swamp tree so possibly it did not come from the immediate neighborhood of the city.

Do you remember the peculiar Post Oak with white scaly bark growing in low wet ground west of Opelousas? The leaves are not pubescent on the lower surface like the peculiar Post Oak of the Natchitoches region, and apparently they lose the stellate pubescence from the upper surface very early in the season. We have never had the mature leaves of this Opelousas tree and fruit has never been collected; this is a Louisiana tree which certainly needs further investigation. Either it is a new species or a very distinct form of the Post Oak.

I thought at one time the Hickories were bad but I must acknowledge the Oaks are more troublesome, and certainly they are now less well known than the Hickories.

Quercus Shumardii. — [This name is followed by the direct quotation of Buckley's original description, which ends the letter.]

110

January 15, 1916.

Referring to the Opelousas *Malus*, No. 1 is from the clump which the negro carried you to see but which I did not see. This we call *ioensis* var. *Palmeri*. No. 2 is the solitary large tree with red-brown bark which we saw later but further east. This we first collected October 10, 1913. We have from you a specimen called No. 2 collected in April 1914, but there is not a trace of a flower on this specimen.

On the label of your No. 1 collected April 1914 you say "large tree." This I take for granted is the negro tree. On the label of No. 2 you say "large tree, not in clumps."

Don't you think it would be a good plan for you to revisit Opelousas this spring and get good flowering material of this No. 2 which probably has very little to do with variety *creniserrata*? This will give you an opportunity, too, to take a look at the peculiar Post Oak which does not grow very far from it and quite near the *Quercus ludoviciana*.

111

January 21, 1916.

I have just finished looking through Palmer's autumn collection of Oaks. His Natchitoches 8761 and 8762 represent my idea of *Quercus Shumardii*. The buds show that this tree is in no way connected with *Q. rubra*, but I expect it will be found to be a variety of *Q. texana*. This last is well represented by Palmer's 8835 from Chopin. His Windsor 8935 has, as you see, shallower cups and appears to be approaching *Shumardii*. His *Q. breviloba*, Natchitoches 8718, is *Q. Durandii* and this is the first specimen of this species which I have ever seen from Louisiana, although it used to be said to grow on the banks of the Red River at Shreveport. If it does grow there I have never seen specimens. This fine tree can now, I think, safely be added to the Louisiana flora.

The next time you go to Covington would it be too much trouble to cut for me a piece of a stem of the *Illicium* about six inches long and as large a piece as can be conveniently found? It is wanted here for one of my associates who is studying the anatomy of woods.

Have you ever been to Port Hudson and do you know what grows in that region? I should like to go there again myself for it is fifty-three years since I saw it. Have you ever been up the railroad northward from Laurel Hill? This goes on to Woodville, Mississippi, which must be an entirely unknown Oak [region] botanically.

112

January 22, 1916.

I have your two notes of January 18th and the two cups. The more shallow one with the much thickened scales is my idea of typical *Q[uercus] Shumardii*. The specimen with the thinner scales seems to me to be a shallow-cupped *texana*, that is it has the thin scales of that species. What

I think is that these things run together and that *Shumardii* must be considered a variety of *texana*. It has been planted a good deal in the streets of New Orleans and I have collected there acorns with deep and with shallow cups. You say that your two trees can be distinguished in the field but how? It would be very useful if we could so distinguish *Shumardii*, otherwise than by the thickened scales of the cup and keep it as a distinct species.

How large are the specimens of the Natchez Oak [11] in New Orleans? If these planted trees came from Covington it ought not be too very difficult to find these species growing wild there. Have you noticed whether the New Orleans trees are still retaining their leaves?

I enclose an extract from Palmer's last letter. Do you know these regions?

"In Winn Parish, some distance n. e. of Natchitoches, there is a peculiar region with limestone bluffs and saline springs, so different from any of the surrounding country that it should produce something of botanical interest, also in going north from Natch. I passed through a region of nearly pure sand some miles south of Bienville where *Quercus brevifolia* seemed to be very common. I only saw it from the train but wished I could have gotten into it. If you are in that part during the summer and it is convenient I should very much like to spend a day or two with you about Natchitoches and Chopin, where there are a great many good things to be seen. The accommodations at Natchitoches are very good and I spent sufficient time about there to know something of the surrounding country." Have you noticed whether the New Orleans trees are still retaining their leaves?

113

January 26, 1916.

Many thanks for the package of specimens. The two Oaks are just my idea of *Quercus texana*. *Malus* #2 from Opelousas certainly should be followed up. It seems intermediate between *angustifolia* and *ioensis* and nearer the former. The bark as I remember it is different from that of any of our American species. This may be something new.

We have a specimen of *Magnolia* collected by Mohr near Mobile with the cordate leaves of your specimen. The Mobile specimen has always been considered an *acuminata*, and I think it is probably a variety of that species. The leaves are not at all like what we call *cordata*. This of course is a tree to follow up.

114

February 8, 1916.

I have been trying to group all the *Tilia* material in this herbarium with the following results as far as your specimens are concerned:

Alabama. #1, bluffs of the Alabama River. A species with glabrous branchlets, thin cordate leaves stellate-pubescent below throughout the season. I collected specimens last April near Sardis and you collected it in

[11] *Q. comptonae* Sarg.

1914; no other date on the label and no number. This species has not been collected and these are urgently needed.

#2, *Tilia heterophylla* Ventenat, not of Sargent's Manual, = *T. Michauxii* of Nuttall but not of Sargent's Manual. To this species I refer your numbers 780, 782, 790, 792, and many specimens collected by Harbison.

#3, a glabrous species with very coarsely serrate leaves, your 6, 784, 786, and 788, "near Selma, 1914," and Selma, June 12, 1914. This might pass for a green-leaved form of *T. floridana* if the leaves were not so coarsely serrate. If these specimens had been found in the north they would certainly be referred to *T. americana*. I feel very doubtful about this tree of which we have good material. Your specimen from West Feliciana, June 1907, called *T. americana*?, is evidently the same thing. This makes three species for Selma.

Louisiana. #1, branchlets glabrous, leaves stellate-pubescent below through the season. Lake Charles, your 2530 from the Mills Place. I had supposed that the Avery Island plant with leaves pale pubescent below belonged here but I find on the upper surface of the leaves the remains of stellate-pubescent hairs. These are very unusual on the upper surface of *Tilia* leaves and the Avery Island plant may be something entirely distinct. I much want to see the very young leaves of your Lake Charles tree and fruiting specimens of the Avery Island tree. I have placed with the Lake Charles tree Palmer's following numbers from Natchitoches Parish, —

8747, 7946, 7397, 7474, 7554, 8013, 8021, 7420, and the specimen collected by you at Natchitoches April 15, 1911. Palmer's 7675 from Welsh is probably the same as it has glabrous branchlets. All these specimens are very incomplete and we ought to have more and better Lake Charles material of this number.

#2, a perfectly glabrous species with leaves green or more or less glaucous on the lower surface. This is our #2 of last spring from Lake Charles, and Palmer's 7644, 7673, 8523, 7574, 7342, 7694, 8510, your 2534, your Lake Charles specimen of March 26 and May 12, 1911, and your Shreveport specimen of June 1908. What I believe is the same species but with leaves more or less glaucous on the lower surface are Palmer's 7923, 8699 and 7569. These specimens with glaucous leaves I do not know how to distinguish from *T*[*ilia*] *floridana* of Small, and I do not see how to distinguish the glaucous and the green-leaved specimens specifically. We have only very incomplete material of this #2 from Lake Charles.

#3, a species with glabrous branchlets, young leaves stellate-pubescent but soon becoming glabrous, and usually conspicuous tufts of axillary hairs. Your 2528 from West Feliciana seems to be this species which is our #3 of Lake Charles and Palmer's 7523, 7956, 7554, 7479, 7474, 7952, 7397, your Natchitoches specimen April 27, 1911, your Lake Charles 2530 and 2536, Palmer's 8511, 7695, your Lake Charles October 1914, your Winnfield April 6, 1913, our Opelousas April 3, 1913, your Laurel Hill March 1910. This seems a widely distributed species in Oklahoma, eastern

Texas and Arkansas, and gets into Mississippi. Our Louisiana material is still very incomplete, especially that from Lake Charles.

#4, a tree with pubescent branchlets and leaves rusty tomentose below. Your 2532 (3 L. C.) from Lake Charles, and Palmer's 7674, 8500, and perhaps 8494 but of this the branchlets are glabrous. I suppose that the "Tilia pubescens" of Avery Island belong to this species. There are no fruiting specimens of any of the above numbers and they are urgently needed.

I should say then that there are certainly four species in Louisiana. If, as I suspect, the Avery Island specimen with young leaves stellate-pubescent above is a species, there would be five, and if the glabrous tree with very coarsely serrate leaves from West Feliciana can be separated from *T. floridana*, then there are six species.

The important species to work up are the two species from Avery Island, the fruit of #4 from Lake Charles and the young leaves of your Lake Charles #3. It is important to compare young leaves of all the species because the conditions of their early pubescence may be very helpful in distinguishing the species.

I had hoped that we had reached the end of the southern *Tilias* but evidently we are still very far from that I fear. It is astonishing how the peculiarities of the southern trees have been overlooked or neglected.

There is confusion I am sure about that Mills Place Lake Charles number.

115

February 10, 1916.

I am sending you under another cover the cup of a very small Oak fruit and a cup and nut of a larger one. These seem to have been both gathered by me at Laurel Hill when we were there together. We have young leaves which belong to the small cup and these leaves seem to be *Q. texana*. The shape of the cup is all right for that species but of course is exceptionally small. The large acorn and cup would pass here at the north perfectly for a Red Oak. Unfortunately there are no leaf specimens which belong with this acorn. It appears to be in an exceptionally good condition if it was picked up from the ground in March, which was the time we were at Laurel Hill.

If the Red Oak gets at all into Louisiana I suppose it would be in West Feliciana, and I am sending you this material in the hope that it may help you in studying this group. Of course it is desirable to determine, if we can do so, the true range of the Red Oak. Undoubtedly what has been called Red Oak in the south is often *Shumardi*.

Ames and I are starting about the 10th of March for a short trip in Arizona, but my idea is to stop a day in New Orleans to talk matters over with you and then on the way back to stop again, if you think it desirable to do so, and return home by Natchez. All this, however, can be decided when I see you in New Orleans on the way west.

116

February 19, 1916.

I have yours of February 15th. Please take another look at your *Tilias* 784 and 788 from Selma. The flowering specimens look rather different but I cannot find much difference in the fruiting specimens. How do you distinguish these two trees? The truth is we have got to live with trees in order properly to understand them. Herbarium material is really of very little good except as a record. These two numbers look very much like the *Tilia* from west Louisiana.

In order to meet engagements further west Ames and I would have to be in New Orleans on the morning of March 16th when I hope the crowd will have left. We had best write, I think, for our accommodations at the hotel. I should like to devote a part of the day to going over with you your specimens of *Tilia* and *Quercus*. Our plan now is to be back in Louisiana in April, but about this we can confer on March 16th.

117

February 23, 1916.

I have just been through all the Hickory material of the 1915 collections. The most interesting thing for us now in Louisiana is your Natchitoches #6 of 1913 and 1914, for which I long ago wrote out a description, but I had so little material that I did not do anything more about it. I believe that Palmer's Natchitoches 7258 (see this), which he called *C*[*arya*] *alba*, may be this same tree, and I believe also that the two small trees which we found in dry woods just before we got to the quarry at Winnfield April 6, 1915, may be the same. We thought at the time they were *C. alba*, but of course they have nothing to do with that species. These trees ought to be followed up, and if you cannot get there in the autumn perhaps Palmer can.

I suppose that those miserable Monroe Hickories which have bothered us so much, judging by the buds, all belong to *C. arkansana*, but they did not have good *arkansana* bark. It would pay to get spring material which would show the young leaves.

In spite of the very differently shaped fruits which used to puzzle us so much I now believe that the following Natchitoches numbers must be referred to *C. arkansana*: Cocks 10, xi. 12, 16, 20, Palmer 1 and 3, also Chopin 1 of Palmer, Lake Charles 1 of Cocks, and Cocks and Sargent, Lake Charles (yard of J. Mills).

Your Grand Ecore 3 of 1913 may also be *C. arkansana* with small globose nuts. It is important to see your leaves of this number. Can you find the tree or tell Palmer how to do it? Grand Ecore, Palmer 7524, Creston 7016 Palmer seem to be *C. arkansana*.

1 and 18 of Natchitoches which I had placed with *C. megocarpa* [sic] are evidently *C. arkansana*. I feel very doubtful about 2 and 5 of Natchitoches and I should like to see young leaves of these numbers. 5 may be *C. arkansana* but I am doubtful about 2. It is possible that the flowering and fruiting specimens are of different species.

I hope you can get together all the specimens about which I have been writing you lately so that we can discuss them on the 16th of March when we shall not have any too much time I fear.

118

April 24, 1916

I got home Saturday night after a successful two days in Natchez and one day in the neighborhood of Jackson where unfortunately Harbison did not turn up.

Miss Compton has now located in Natchez twenty-nine or thirty individuals of the new Oak. All the old trees are in the neighborhood of buildings but some of these must be so old that I am inclined to believe that they must be original trees left standing when the forest was cleared. We saw, however, two wild trees, one growing in a field far from any houses and probably thirty or forty years old, and one much smaller in the woods. The relationship of the trees certainly would be Live Oak and I believe should be looked for on high ground and not in swamps. The largest specimen near Natchez is fully one hundred feet high and another tree has a trunk about five feet in diameter. Several of them are much larger than the tree we showed you on the Duncan place.[12] It is as evergreen as *Quercus virginiana* and is certainly one of the finest Oaks in the United States. I hope you will be able to locate the wild trees in Louisiana.

The Maple tree from which we collected on our way to Natchez and which you thought was *Acer leucoderme* is evidently the same form of Sugar Maple that grows in West Feliciana and is evidently a distinct form.

I shall hope soon to hear about your visit to Sardis. I enjoyed our days together immensely and certainly West Feliciana can produce as fine trees as are to be seen in any part of the United States.

119

May 3, 1916.

I think it would pay you when you are in West Feliciana Parish in the autumn to look into the Beech question a little and collect good fruiting specimens from a number of trees. I collected only two specimens this spring and these represent the northern species, *F[agus] grandiflora*, and the southern variety, var. *caroliniana*. The curious thing about it is that the under surface of the leaves is very pubescent. The pubescent *grandiflora* has been described as forma *pubescens* and apparently has only been collected before in New England. What is more interesting perhaps is that the leaves of the specimen of the variety *caroliniana* are also pubescent on the lower surface. This has been described as forma *mollis*. Apparently it has only been collected once before, at Tallahassee by Nash in 1895, and in Louisiana (New Orleans) by Drummond in 1832.

[12] "Duncan Park" of Dr. STEPHEN DUNCAN of Natchez.

This collection seems to give you two new varieties for Louisiana. It would not be a bad idea to collect *Fagus* in any part of the state you may visit.

I hope you are finding the new Oak.

P.S. — The right name of the shrub we found so common and naturalized by the roadsides near Laurel Hill is *Pyracantha crenulata* Roemer.

120

May 10, 1916.

Many thanks for the package of specimens which arrived yesterday.

Tilias.

820. This is the species with leaves stellate-pubescent on the lower surface while young, becoming glabrous, and small but conspicuous axillary tufts. This seems to be the commonest Linden of Louisiana and southern Arkansas.

822. The glabrous, early-flowering species I suppose. There is a trace of axillary clusters on this particular specimen, the flower-buds appear although the leaves are not much grown.

834 = 822.

836, *T. heterophylla.*

832 = 822 and 834, I believe.

4014 is what we have been calling *T. floridana.*

4016, the species with pale pubescence on the lower surface of the leaves. This, according to the original description, should be *T. leptophylla.*

4012 = 4016.

4010 = 4014.

2530 = 4016.

Alabama 842 = *Malus angustifolia.*

Alabama 844, *Amelanchier.* Mature leaves and fruit desired if not already sent.

Quercus 838, Sardis. This certainly outdoes *Shumardii* as we have seen it in Louisiana.

I notice that you are quite cautious about giving names to your Oaks and I do not know how to tell the young leaves of *austrina* from those of *Durandii.* I hope you can do so.

Notice your 840 which has stellate pubescence on the upper side of the leaves. Is this a Post Oak? What is 830 from Pine Bank Creek with its long-stalked fruit? Can this be the Natchez tree or is it what you call *Q. austrina?*

I hope to hear soon from you again.

121

May 23, 1916.

Much obliged for your letter of March [sic] 18th. I am glad to hear that you found *Carya pallida* in Louisiana. I notice what you say about the lateness of *C. alba.*

I have noticed in different places in the South individual trees of what I supposed was *C. alba* which were very much later in coming out than is usually the case with this tree. I have not been able, however, to follow up any of these trees to find out if they had other peculiarities. I suppose you can recognize in the autumn these late trees and it would be well, of course, to collect fruit and leaf specimens. These may show some characters which would make it possible to distinguish the late trees as a variety.

I do not think I ever wrote you about *Quercus velutina*. My variety *missouriensis* was based principally on the stellate pubescence on the upper side of the leaves. I saw at Jackson this spring a small tree with these stellate leaves but the inner bark was not yellow like the inner bark of the common form of *Quercus velutina*. It is possible that this stellate pubescence and the gray inner bark may have some relationship and make it possible to distinguish another form of this tree. Harbison has noticed the same thing in Mississippi and western Florida, and I think it would be well for you to bear this in mind and keep a lookout for Black Oaks.

There is certainly an undescribed species of *Malus* at Sardis, your numbers i., ii. and iii. The leaves on the flowering branches of this tree look exactly like those of *M. angustifolia* but the mature leaves, especially on the shoots, resemble those of some of the forms of *M. ioensis*. Possibly the *angustifolia* which you sent me the other day may belong to this tree. I have n't got time to look at the specimens this morning however. I will write you later on this subject. Harbison says that the young leaves of *Q. austrina* are perfectly glabrous.

122

June 1, 1916.

Have you ever collected *Halesia carolina* in Louisiana? If so, we have no specimen in our herbarium. My Manual speaks of it as growing through Louisiana to eastern Texas and Arkansas. West of the Mississippi we have one specimen collected in northern Arkansas, nothing from Louisiana or Texas. It appears to be common at Selma. It is possible that the description of the range has got to be modified.

123

June 8, 1916.

I am very glad indeed to get at last the Avery Island *Tilias*. They do not look at all as I thought they were going to and seem to be the same as three common species at Lake Charles. So much the better, for the fewer species we can get on with the better.

What do you know about the distribution of *Asimina triloba?* We have Louisiana specimens only from Wakefield and Natchitoches. Does it grow in eastern Louisiana, and how does it happen that it does not grow at Sardis? We have no Alabama specimen whatever in the herbarium.

124

June 19, 1916.

I have yours of the 14th from Sardis where I hope you are not suffering too much from the heat. I am just going to begin to arrange this spring's collecting of *Tilia* and will write you again on that subject.

I have given up trying to understand *Q. Durandii* and *Q. austrina*. Harbison, however, thinks he knows these trees as far off as he can see them and I am enclosing your note to him. The leaves of *Q. Durandii* vary more on the same tree than those of any other Oak I have seen. On the lower branches they are very often deeply lobed and higher on the tree entire, and sometimes green and glabrous below or pale and pubescent, although I believe the pubescent leaves are more common than the glabrous ones.

I will ask Harbison to write you just where he found the Natchez Oak near Sardis and I hope you will be able to locate the tree and find others. Palmer has failed to find it where Mohr collected in Texas twenty-six years ago, so we know it only as a tree growing near human habitations.

125

June 30, 1916.

Perhaps you will be interested in reading the enclosed from Harbison. Please let me have it back sometime. Notice what he says about the difference in *Tilia* at the top and bottom of the trees, and also about *Quercus*. You and he between you ought to be able to get to the bottom of this *Quercus austrina* business.

126

July 5, 1916.

In spite of all our efforts the Louisiana *Tilia* material here is still very incomplete and unsatisfactory, as you will see by the following. My present idea is that Louisiana specimens can be grouped as follows:

A. The perfectly glabrous species without axillary tufts of hairs.

Lake Charles.

Cocks, May 12, 1911, no number, good flowers.

May 21, 1915, 2534, good flowers.

Palmer, 7644 in bud, 8523 sterile.

Sargent, river bank, April 12, 1915. #1 yard of C. J. Mills, sterile. River bank, April 13, 1915, #1, sterile.

St. Francisville.

Sargent, April 12, 1916.

Laurel Hill.

Cocks, March 1910, sterile.

Natchitoches.

Palmer, 7569 in bud, 7523, good flowers. These Palmer specimens have leaves glaucous below but are probably a form of species represented by Group A.

Please notice that we have n't a single Louisiana fruiting specimen of this group. The tree is common in Mississippi and reaches Texas and Alabama, and your Sardis 786, of which we have three fruits I think is the same.

B. This is the species with large leaves very oblique at the base, early in the season very thin, bluish green, lustrous and slightly pubescent below, especially on the midribs and veins, usually soon becoming glabrous, axillary tufts small, often wanting. My #2 of Lake Charles, April 13, 1915, is my idea of this species. We also collected it March 26, 1911. It is your 4014, Mills Place, April 3, 1916.

Lake Charles.

Palmer, 7694 in bud, 8510, sterile (bracts but no fruit), 7695 in bud, 8511, sterile.

Avery Island.

Cocks 4050 and 4052.

Natchitoches.

Palmer 7574, sterile, 8699, sterile, 7956 and 7963 with flowers.

Welsh.

Palmer 7673, sterile.

Chopin.

Palmer 7342, sterile, 7970, poor flowers.

Grand Ecore.

Palmer 9449, sterile.

East Opelousas.

Cocks 401, sterile.

Shreveport.

Cocks, 10, June 1908. D. Coty, no date.

West Feliciana.

Cocks, 2540, flowers and fruit.

I should have liked to have made my #2 of St. Charles the type of this species for the young leaves look so distinct, but if you can get fruit of Avery Island 4052 that might be taken as the type. This tree grows also in Texas and Arkansas but we have no very good material from those states.

Sardis.

Cocks 822 and 834, April 20 and 22, 1916, and 788, flowers and fruit complete.

I once thought 788 belonged to Group C but the leaves are very oblique and bluish below. The tufts of hairs are prominent on this specimen, but I do not know how to distinguish these numbers from the Avery Island tree. Are 822 and 834 from the 788 trees? It would be well to get fruiting specimens of these numbers. Please write me, too, the sort of place in which this tree grows, the height of the tree approximately, diameter of trunk, nature of bark, branching, and any other information you can supply as we may have to take the Sardis plant as the type of the species in case we cannot get more Louisiana material.

C. Leaves more or less cordate, dull green when young on the lower surface, more pubescent than those in Group B, becoming glabrous, axillary tufts large and conspicuous.

Lake Charles.

Cocks 2536, flowers just opening May 21, 1915.

West Lake Charles.

Cocks, October 1914, no number, sterile.

Near Alexandria.

Cocks, June 1905, in flower?

Shreveport.

Palmer 9479 in bud.

Opelousas.

In rich woods, Sargent, March 29, 1900, and April 3, 1915, both sterile.

Natchitoches.

Palmer 7523 and 9416, both sterile.

St. Francisville. Cocks 2523 in bud.

Sardis. Cocks 820 and 832, April 20, 1916, sterile. We should have more specimens of these numbers.

D. Leaves mostly very oblique at the base, rusty pubescent below during the season.

Lake Charles.

Cocks 3, 2530, flowers, fruit and young leaves, and 2532. The branchlets of 2532 are pubescent and those of 2530 are perfectly glabrous. How about getting fruit of 2532?

Avery Island.

Cocks 4054 in flower May 24, 1914, is evidently the same but the branches are more pubescent.

October 18, 1900, a sterile shoot.

Welsh.

Palmer 7674, 8500, 8495, all sterile.

E. Leaves smaller than those of the last group, mostly cordate, densely pale stellate-pubescent below during the season but the pubescence is not closely attached and can be easily rubbed off.

Lake Charles.

Sargent 3, April 13, 1915. Several sheets, all sterile. One specimen taken near the schoolhouse in West St. Charles [West Lake Charles intended] has pubescent branchlets; those of the other specimens are glabrous.

Natchitoches.

Palmer 7420 in bud, 7946 in flower, 8747 sterile, 7474 in bud, 7952 in flower, 7479 in bud, 9416 sterile, 8013 sterile, 8021 sterile, 7397 sterile.

Cocks, April 27, 1911, in bud, no number; April 15, 1911, sterile, no number.

Chopin.

Palmer 7554 in bud.

Welsh.

Palmer 7675, sterile.

East Opelousas.

Cocks, 4312 and 4016, sterile.

Winnfield.

Sargent, April 6, 1913, sterile. We have no fruit of this tree from Louisiana, and you do not appear to have collected any specimen in the state.

The specimen of 2530 taken April 3, 1916, at the Mills Place seems to belong to E rather than to D. Are there not two species on that wretched Mills Place?

This seems to make five species in the state, although it may be difficult to separate B and C with the material we have.

At Sardis there is a Linden with oblong finely serrate thin leaves pale pubescent below during the season and obliquely cordate at the base. We have a sterile branch collected by you in 1914, no date and no number. I collected what I think is the same on the bluff near Sardis April 19, 1915, sterile shoots only. I don't think this is your 788, and I don't find that you have sent flowers or fruits. Possibly your Sardis 22 and 23 belong here. These two sheets look abnormal. The leaves are very long-pointed, very coarsely serrate and oblique at the base. These trees should be followed up and more material obtained.

Your Selma 784 and 6, and also several other unnumbered sheets collected in 1914, bother me a good deal for I cannot find any way to separate them from *T*[*ilia*] *americana*. *T. americana*, however, is a distinctly northern tree as we now understand it and does not appear to extend south of Pennsylvania and northern Missouri. Please look at these trees and see if the leaves are lustrous below and if there is any pubescence on them except the axillary tufts. I am afraid that your specimen from Wakefield, Louisiana, June 1907, is the same.

Have you ever heard anything from our Laurel Hill friends and are they collecting any material for us? Don't you think it would be a good plan to ask them to get fruiting specimens of all the different Lindens in that neighborhood?

Memorandum.

Tilia material needed before these trees can be properly described.

A. Fruiting specimens from Louisiana and Sardis 786.

B. Fruiting specimens from Avery Island 4050 and 4052, and from Lake Charles where it appears to be a very common species.

C. Fruiting specimens of Cocks's 2536, Lake Charles, and fruiting specimens at Sardis 820 and 832.

D. Fruiting specimens of Lake Charles 2532, Avery Island 4054.

E. Lake Charles fruiting specimens.

Sardis. Fruiting specimens of Cocks's 22 and 23, also of the species collected by Sargent on the bluffs April 1915.

Additional material of 784 and 6.

127

July 12, 1916.

Of the *Quercus* of your last sending two specimens (no numbers) called *Durandii* and *austrina* are both *Durandii*.

958 is my idea of *austrina*. 960 I suppose is a good *Durandii*. These species are easily distinguished by the fruit.

820 I should call *Durandii*. 824, probably *austrina*. 826, *Durandii*. 840, *Durandii*. 830 I do not know but it may be *austrina*.

958, 970, 956, 950 and 934 appear to be some form of the Post Oak.

The small tree by the stream at the foot of this hill where we were stuck, and called both *austrina* and *Durandii*, I now think is the Post Oak with scaly bark.

4022, West Opelousas, is the Post Oak like that at Natchitoches.

I enclose another communication from Harbison. Between you I think you ought to be able to clear up this Oak business this year.

I take it that your Sardis *Tilia* 952 and 954 is the one I collected on the bluff near Sardis about which I wrote you the other day. This tree apparently grows at River Junction, Florida. We have no flowers or fruit.

You called your Sardis 950 *T. floridana*. Have you ever seen this before?

How does your Hickory which was so late in putting out its leaves look now?

If you stay late enough in Alabama it would be a good idea to get some acorns of your peculiar hybrid Oak 938 to plant, as these hybrid Oaks are interesting and it is possible that it might be hardy here.

Too bad that you and Harbison did not connect!

128

August 7, 1916.

It is a long time since I have heard from you although Harbison wrote me the other day that he had a letter from you telling him of the floods in your region. I hope your crops are not ruined. Farming in the South seems to be a very precarious business.

The young leaves of *Quercus austrina* as collected by Harbison are perfectly glabrous and I think all the specimens which you have sent under that name are either *Durandii*, which seems to be a common tree with you, or forms of the Post Oak. I trust you will be able to get a good supply of *Quercus* material so that we can settle this year some of these doubtful points.

I have pretty much come to a conclusion about Lindens, or most of them, and will write you on the subject in the course of a few days. I wish you would take a look at *Magnolia glauca* and perhaps make some specimens. Harbison has recently found a shrubby form with perfectly glabrous peduncles, while in the form which grows to a large tree the peduncles are densely covered with snow white silky hairs. At the north the plants are shrubby and the peduncles are glabrous. Most of our

southern specimens have silky peduncles, especially those from Natchitoches collected by Palmer. I do not think we have any specimens from Sardis and shall be glad to have them.

If it is any hotter in Alabama than it is here today I am sorry for it.

129

August 9, 1916.

I have this morning yours of August 3rd. You must have had a horrible time and I fear that your crops are ruined.

I think we are slowly getting a little light on the *Tilia* situation, but it is a tedious and difficult job because material is often so fragmentary. There are certainly a number of new species. I notice that your 2530 from Lake Charles has perfectly glabrous branches and that 2532 has pubescent branches. We have flowers and fruit of 2530 but only flowers of 2532. I hope therefore that the new Louisiana collections may include fruit of this number. These numbers must represent the same species in spite of the branches. The lower surface of the leaves is covered with matted stellate pubescence which is easily rubbed off and not like the close persistent tomentum which you find on several of the Sardis species. This Lake Charles tree, which is also common in the coast region of Texas, does not seem to extend east of the Mississippi River.

I hope soon to hear that things are in better shape in your part of the world.

130

August 26, 1916.

Thanks for yours of the 21st which I find after a short visit in Illinois and St. Louis.

No, that *Crataegus* won't do for *C. aprica*. It is no doubt an undescribed species.

I went to St. Louis to see Palmer who was arranging his spring collection. He has a good deal in the autumn to do in Texas and I have told him that it was not absolutely necessary for him to get back into western Louisiana this autumn. He thought, however, he might do it. He reports very large trees of *Quercus Durandii* in Natchitoches, so that is another Louisiana tree. Apparently they are doing nothing in St. Louis in the way of distributing his plants and claim they are not going to distribute anything until they can make a critical study of them. I am sorry about this and if you can designate exactly what you need I will make another attempt to get them for you.

If you get this note drop me a line as to where you are to be in Virginia as I am going there myself in September and it is possible we might meet.

131

September 28, 1916.

I have yours of the 19th. I wrote you on August 9th & 26th & told you of

the safe arrival of the specimens & suggested that we might meet in Virginia whence I have just come. Have you specimens of the late *Carya alba* about which you have written me or if not can you get them?

I will write a real letter when my secretary gets home.

132

November 16, 1916.

It is a long time since I have heard from you and I hope that silence does not mean that you are entirely swamped by those Alabama Oaks and Hickories. The Oak business seems to be endless, for now Harbison feels quite sure that he has found a new species near Vicksburg. I have n't, however, seen his material.

I am writing especially today to tell you that we are sending you by mail two plants of a Chinese vine, *Sargentodoxa cuneata*. We think here it is going to be a good thing as in China, at least, it grows vigorously and has fragrant yellow flowers. Will you "place" these two plants where they will be likely to be taken care of? I am rather anxious about these because I am afraid this plant will not prove hardy in the north.

Hoping to hear from you soon, I am,

133

November 18, 1916.

According to Harper, "Mr. Mattoon of the U.S. Forest Service claims to have found *Pinus caribaea* in eastern Louisiana this year. Dr. Mohr did not seem to have any information about its occurring in Louisiana when he mapped its range, and I did not see any of it west of the Pearl River when I visited New Orleans in 1905."

Have you any views one way or another about this tree in Louisiana?

134

December 30, 1916.

I very much fear there are three species of *Tilia* on Avery Island.

First, *Tilia floridana*, Cocks 4052, May 29, 1916, and 4042, July 28, 1916.

Second, *Tilia ambigua*, n. sp., Cocks 4050, May 29, 1916; Miss McIlhenny, June 8, 1915, "the smooth barked Linden." This is a common western Louisiana species and our No. 2 of Lake Charles. It is one of the trees which has been placed under lettophila [sic], which name I now want to abandon as the identification is not possible.

Third, *Tilia Cocksii*, Cocks (4054) May 29, 1916, (4040) July 28, 1916. "The rough barked Linden," Miss McIlhenny, June 8, 1915. This looks superficially like some of the Lindens from the coast of South Carolina and Georgia which have been called *Tilia pubescens* but is distinct from them in its glabrous branches and buds. I have seen nothing like it except these Avery Island specimens and I wish we could find it in other localities. I hope, however, that we are going to Avery Island in

the spring and then perhaps we shall be able to see more of these trees.

This is only the first paragraph of the Linden dose I am going to send you very shortly.

With best wishes for the New Year, I am,

135

January 2, 1917.

I have determined some of your Alabama *Tilias* as follows:

T. Harbisoni, n. sp., near Selma, 1914, Cock's 780, 790 and 792. This is a common west Florida species and I think a good one.

T. floridana var. *oblongifolia*, n. var. 788 type, 820, 832, 834, 952, 954, 958, also near Selma 1914. This is a common Louisiana tree about which I shall write you later.

T. nuda, n. sp. 95, June 6 and July 28, 1916; 954 (= 956 of 1915), June 28, 1916. Where is 956? I do not find it here. This is a perfectly glabrous species which is common in Mississippi, Louisiana, Arkansas and eastern Texas. Selma appears to be its most eastern station. The trees at Natchez, Mississippi, I have taken as the type.

Hutchins' Run, Cocks's 970, July 26, 1916, with partly grown fruit. This differs from all other species of the United States' *Tilias* which I have seen in the long hairs on the fruit, and if this is a constant character I suppose this is a distinct species. If you can locate the tree so that Harbison can find it in early spring; flowers and mature fruit will have to be collected either by him or by you.

964, 966 and 968, Hutchins' Creek, Cocks, June 27, 1916. This looks like what we have been calling *T. heterophylla* but flowers are needed. Can you locate these trees for Harbison? 962 Hutchins' Creek may be the same but the branchlets are much more slender and the buds smaller.

782, limestone cliffs of the Alabama River at Cocks's place, June 15, 1915, has slender light yellow branches and seems different from any of the others.

836, young leaves, April 21, 1916. I do not connect this with any of your other specimens. What is it?

Your Selma 1110, May 5, 1913, which seems the same as Selma June 30, 1915, I cannot place. Complete material is needed.

I am still in doubt about your Sardis species which we have thought might be *T. americana*, represented by your #6 of July 14 and #784 of June 2, 1915, by specimens collected in June 1914 and by #960, July 25, 1916. Specimens from West Feliciana and from Alexandria seem to be the same. The axillary tufts of hairs which are so conspicuous in *Tilia americana* are smaller and often wanting from your specimens. Can you tell me if your #822, April 20, 1916, is from one of these trees? If not, Harbison ought to look them up and get young leaves. I suppose you can tell him where to find them. The fruit appears to be usually depressed-globose. I do not know, however, how to really distinguish these dried specimens from *T. americana*, but central Alabama is a long way from the home of *T. americana*.

When we see how difficult it is to get complete material of these southern Lindens it is not at all surprising that they have been misunderstood and neglected for so many years. I am afraid there is still a good deal of field work to be done on them. If you can give Harbison the information how to find the doubtful numbers he can go there this spring and obtain the young leaves, always supposing that you were unable to do so. Of course you could probably find the trees much more easily than he could. In case you can not go will you get into communication with him?

136

January 4, 1917.

Will you send me your full name so that it can appear with the description of *Tilia Cocksii*, also can you give me the Christian name or names of Miss McIlhenny who sent me specimens from Avery Island?

As you know, there are on the Louisiana coast region a number of islands similar to Avery Island. Have they ever been explored botanically, and don't you think this ought to be done in connection with this *Tilia* business. It seems fair to presume that the vegetation on these islands would be very similar. We certainly ought to try to find *Tilia Cocksii* in more than one place.

137

January 6, 1917.

I have referred the Louisiana species of *Tilia* as follows:

Tilia ambigua, n. sp. Our Lake Charles #3, Avery Island, Cocks' 4050; Chopin, Palmer 7554; Creston, Palmer 7420; Welsh, Palmer 7675, 8494; near Winnfield, Cocks and Sargent, April 6, 1913, East Opelousas, Cocks 4012 and 1016; on Little Bayou Teche, Cocks 4018.

Please notice that we have neither flowers nor fruits of this species from Lake Charles. We have a very poor flowering specimen from Avery Island but no other flowers from the state, and fruit only from Little Bayou Teche.

T. floridana, Small, West Lake Charles, Cocks, October 1914 (no number); Lake Charles, Cocks 2536, 2530, 4014; our #2 of Lake Charles; Palmer, Lake Charles, 7695, 8511.

Notice that from Lake Charles we have partly expanded flowers on your #2536 but no other flowers and no fruit at all.

Avery Island, Cocks, 4052 and 4042. Grand Ecore, Palmer, 9449; Chopin, Palmer 7970, 7342; Natchitoches, Palmer, 7574; Shreveport, Palmer, 9479, 10608; Welsh, Palmer, 7673; East Opelousas, Cocks, 4010, 4020; West Feliciana, Cocks, 2540; St. Francisville, Cocks, 2528; near Laurel Hill, Cocks and Sargent, April 12, 1916; West Plantation, Bayou Sara, Cocks and Sargent, April 14, 1916.

There is good material from Avery Island. 4020, East Opelousas, has good fruit. 2540, West Feliciana, has a few open flowers. All the other specimens are very incomplete.

Tilia floridana, var. *oblongifolia*, n. var. Laurel Hill, Cocks, March 1910; Natchitoches, Palmer, 9437, 8699, 9416, 7956; Grand Ecore, Palmer, 7523; Chestnut, Palmer, 9462.

Natchitoches 7956 has good flowers but there are no other flowers and no fruit of any of the Louisiana specimens.

Tilia rhoophila, n. sp. Lake Charles, Cocks, 2530 (I am doubtful about this), 2532; Welsh, Palmer, 8500, 7674.

There are good flowers of 2532 but no fruit, and all the Welsh material consists of young shoots. 2530, Lake Charles, has glabrous branches and buds and may be *T. Cocksii*. This species, if it is one, needs investigation in Louisiana.

Tilia nuda, West Feliciana, Cocks, 4024; Lake Charles, Cocks, May 12, 1911, 2530, 2534, Palmer 7644, 8523, our #1 of Lake Charles.

T. nuda, var. *glaucescens*, n. var. Natchitoches, Palmer, 7569, 7923.

The type of this new variety is Cocks Sardis 786. We have no flowers or fruit of the variety from Louisiana, and only two fruits from Sardis and none from Texas.

With *T. Cocksii* this makes five Louisiana species without the Sardis species with coarsely serrate leaves like those of *T. americana* which, judging by the two fragmentary specimens, also grows in Louisiana. On the whole our Louisiana material is not at all satisfactory. When we remember how much time and trouble we have taken to get together the small amount we have it will perhaps be understood why these southern species have been so much neglected and overlooked. Certainly there is no other genus which is more difficult to collect material in a saitsfactory condition.

A common Lake Charles tree our #2 with leaves at the end of May very thin, blue-green and nearly glabrous below is interesting. It belongs with the *floridana* set but perhaps should be distinguished as a variety. Palmer 7694 and 8510 from Lake Charles may be the same but I am not sure, and probably Natchitoches 8697 may be the same form. We have no flowers and no fruit of this tree from Lake Charles and we ought to try and get them. I take it for granted that you know the form I am talking about as you collected it at Lake Charles March 26, 1911 (no number).

I wish you would think over the situation and decide if possible if you will be able to obtain some of the material we need this year. The important things to get are flowers and fruits of this Lake Charles *Tilia floridana*, and material and information of *T. rhoophila* from Walsh. Palmer has a good deal of *Tilia* work to do in western Texas this year and it is desirable that it be arranged so that we will not be obliged to go into Louisiana at all this season. I take it for granted that you will be able to get off for a week or ten days about April 1st for a trip into western Louisiana, and also for your proposed expedition with me into the country adjacent to the Illinois Central Railroad. Apparently there are no Lindens in East Louisiana except in West Feliciana; we at least

do not seem to have any specimens from that part of the state. How about this?

As the nature of the pubescence is the best character by which to distinguish the various species it is essential to collect in the spring the half-grown leaves. It is necessary therefore to visit trees three times, in the spring for young leaves and in the summer and early autumn for flowers and fruit. The color of the branchlets and the character of the winter-buds have been almost entirely overlooked, and it will be laborious and expensive to get these in addition to the spring and summer material. All these southern trees ought to be grown in New Orleans where they could be easily seen and satisfactorily studied. You need an arboretum there very badly.

138

January 12, 1917.

I enclose a provisional conspectus of the United States species of *Tilia* based on the material already in hand. It will require considerable changing probably when we are successful in getting all the material we need this year. I am sure we have n't got to the bottom yet of the distribution of these trees. For example, we know nothing of Lindens in Louisiana east of the Mississippi River with the exception of those in West Feliciana; certainly there must be others. And we know nothing of Lindens in any of the coast region of Mississippi or Alabama, Selma and Sardis being the most southern station in Alabama from which I have seen specimens. There must be Lindens on or near the gulf coast of Mississippi. If you do not mind doing so I wish you would ask Tracey [sic] if he has not collected Lindens along the southern coast. Lindens are so common on the Carolina and Georgia coast, and so common in places like Lake Charles, that it would be surprising if they did not occur in the coast region east of the Mississippi River.

Many thanks for your letter just received this morning. I will make the corrections you suggest and write you again in a few days.

Conspectus of the [*Tilia*] Species of the United States.

Surface of the leaves glabrous at maturity.

Surface of the leaves glabrous or almost glabrous as they unfold.

Leaves furnished with conspicuous tufts of axillary hairs, their lower surface light green and lustrous; pedicels glabrous or nearly glabrous. 1. *T. glabra.*

Leaves without tufts of axillary hairs, their lower surface not lustrous; pedicels densely hoary tomentose. 2. *T. nuda.*

Leaves finely serrate, yellow-green, oblique or cuneate at the base; tufts of axillary hairs small, rusty brown. 3. *T. littoralis.*

Leaves minutely dentate, yellow-green, without tufts of axillary hairs. 4. *T. brevipedunculata.*

Leaves crenately serrate, glaucescent on the lower surface, the tufts of axillary hairs usually wanting or minute. 5. *T. crenoserrata.*

Surface of the leaves stellate-pubescent below early in the season, becoming

glabrous or nearly glabrous before summer, glaucescent or green, often without tufts of axillary hairs. 6. *T. floridana.*

Surface of the leaves pubescent or tomentose below through the season.

Lower surface of the leaves stellate-pubescent.

Pubescence short, gray, firmly attached; leaves coarsely serrate; tufts of axillary hairs not conspicuous, sometimes wanting; pedicels sparsely stellate-pubescent, becoming glabrous. 7. *T. neglecta.*

Pubescence white, slightly attached.

Branchlets and winter-buds glabrous or very rarely pubescent in No. 8.

Leaves dark green, finely dentate, oblong-ovate, mostly oblique or cordate at the base; tufts of axillary hairs minute. 8. *T. ambigua.*

Leaves blue-green, coarsely serrate, orbicular to suborbicular, symmetrically cordate at the base; tufts of axillary hairs conspicuous. 9. *T. phanera.*

Branchlets and winter-buds pubescent.

Leaves finely serrate, oblong-ovate, obliquely truncate or cordate at the base, up to 12 cm. in length. 10. *T. texana.*

Leaves very coarsely serrate, ovate to orbicular, mostly cordate at the base, not more than 8 cm. in length. 11. *T. grosseserrata.*

Surface of the leaves tomentose below with close firmly attached tomentum; branchlets glabrous.

Leaves broadly ovate, short-pointed, mostly cordate at the base, their tomentum silvery white or grayish. 12. *T. heterophylla.*

Leaves oblong-ovate, long-pointed, mostly oblique and truncate at the base.

Leaves silvery white on the lower surface; flowers at least 10 mm. in length, on sparingly pubescent pedicels; branchlets stout; winter-buds compressed, 10–12 mm. in length. 13. *T. monticola.*

Leaves silvery white or brownish on the lower surface; flowers 5 or 6 cm. long, on densely pubescent pedicels; branchlets slender; winter-buds terete, 5 or 6 mm. in length. 14. *T. Harbisonii.*

Surface of the leaves tomentose below early in the season, becoming floccose pubescent, the pubescence more or less firmly attached.

Young leaves stellate-pubescent on the upper surface.

Leaves often broader than long, dark green above, silvery white on the lower surface; branchlets glabrous or stellate-pubescent during the first season; winter-buds glabrous. 15. *T. amphiloba.*

Leaves longer than broad, yellow-green above, white or brown on the lower surface; branchlets tomentose during their first season, becoming pubescent; winter-buds covered with rusty brown pubescence. 16. *T. georgiana.*

Young leaves not stellate-pubescent on the upper surface.

Winter-buds glabrous.

Branchlets sparingly pubescent early in the season, becoming glabrous or nearly glabrous; lower surface of the leaves rusty pubescent.

Leaves coarsely serrate, their pubescence thin, slightly attached, sometimes entirely deciduous late in the season; flowers 9 or 10 mm. in length. 17. *T. caroliniana.*

Leaves less coarsely serrate, their pubescence firmly attached, persistent through the season; flowers 4 or 5 mm. in length. 18. *T. Cocksii.*

Branchlets pale pubescent during at least two seasons; lower surface of the leaves white pubescent. 19. *T. nivea.*

Winter-buds pubescent.
Pubescence on the lower surface of the leaves and branchlets gray or rusty, that of the leaves only slightly attached. 20. *T. rhoophila.*
Pubescence on the lower surface of the leaves silvery white, the pubescence slightly attached.
Branchlets covered with close pubescence, becoming glabrous in their second year; flowers 7 or 8 mm. in length, the corymbs densely stellate-pubescent. 21. *T. cheiophila.*
Branchlets covered with long rigid hairs mostly deciduous at the end of the first season; flowers 5 or 6 mm. in length, the corymbs covered with straight hairs. 22. *T. trichoclada.*

139

February 9, 1917.

Hickories. 6 of Natchitoches. We used to think this was a new species but I am convinced that the flowering specimen collected in April 1914 is *C[arya] alba*, and that the fruiting specimen collected in October 1913 and the fruit is *C. arkansana.*

#1 of Natchitoches, October 1913, seems to be *C. ovata.*

The *Carya* in dry woods before reaching the quarry at Winnfield, a tree with slender glabrous branches, young leaves nearly glabrous above and hoary-tomentose below. This is not *arkansana, alba, ovata, ovalis, megacarpa, callicoma* or *leucodermis.* What is it? It has always bothered me. Can't you settle this problem this year?

Carya #5, Natchitoches, Cocks, October 1913. This has stout glabrous branches, buds the size of those of *C. ovata*, and stellate pubescent rachis and midribs of the leaves. The fruit is pear-shaped with a thick husk splitting tardily and looking like some of the forms of *C. arkansana.* Unless there is some mixup here I do not know it, but if the fruit and leaves do not go together I do not know the leaves unless they may be some extreme form of *ovata.* 2 and 17 of Natchitoches seem the same. I once thought that 17 was a *callicoma* but these Natchitoches numbers have small obtuse buds covered with yellow scales and are entirely different from the buds of *callicoma.* The young leaves of 2, however, show no trace of the yellow scales, so that it cannot be an *arkansana.* Another species? I hate to think so. Some of the other Natchitoches and Grand Ecore numbers which I have placed with *arkansana* may be the same thing and it is possible, of course, that this may represent another species for western Louisiana seems capable of anything in the tree line.

Have you found out anything more about that Alabama *alba* which leaves out so late? I think I saw the same thing once near Natchez. It may be some variety which we have not got hold of yet. I wish you would go over your Hickory material and see if you can throw any light on any of the numbers I have written to you about today. I had hoped that we had finished the Louisiana Hickories but there seems to be still a little to do at Natchitoches and especially at Winnfield.

140

February 14, 1917.

Here are some of the results of Rehder's visit to New York:

Vitis rufotomentosa. The Louisiana specimen referred by Small to this species of his was collected by Hale near Alexandria and was called by him *V. aestivalis.* The best character by which *V. rufotomentosa* can be distinguished from *V. aestivalis* is in the pubescent branchlets and pedicels. According to this Palmer's 7974 from Chopin, Louisiana, would be *V. rufotomentosa.* Harbison has found it at River Junction, Florida, so there is no reason why it might not grow in Louisiana. I shall ask Harbison to look for it in Alabama and Mississippi. If you want therefore to keep *V. rufotomentosa* distinct from *V. aestivalis* you can include it in your Flora on the strength of Palmer's specimen. I do not believe myself that it is very much of a species. The *Vitis* with pubescent stems, however, ought to be looked for in eastern Louisiana.

Of *Vitis caribaea,* which Small also credits to Louisiana, there is no specimen in the New York herbarium, and only four from Florida. On one of these some one has written "Florida to Louisiana." I think you can safely drop this species as a Louisiana plant for there is nothing to show that it grows there.

Bumelia lucida Small. This is based on a specimen collected by Carpenter in 1838. His label reads, "No. 19, Prinos new? Small tree 10–20 feet high; limbs rigid, some short ones resembling thorns. Grows in thick woods, Feliciana, Louisiana. Flowers in June and 1st of July; berries purplish black. Dr. Carpenter, 1838." Before Small got hold of it some one labeled it "B. lycioides Pursh." I should think it probably a form of *B. lycioides.* It certainly does not look, however, like your specimen of that species collected at Wakefield in 1907. You may be able to find Carpenter's plant yet. In the shape of the leaves it looks like a sterile specimen collected by Letterman near Opelousas in August 1882 and preserved in the St. Louis herbarium.

Bumelia cassinifolia Small is based on a specimen collected by Letterman in August 1883 near Opelousas. We have a photograph of the type specimen and a single leaf. The leaves are obovate, rounded at the apex, thin, glabrous and not conspicuously reticulate. This specimen is certainly different from that collected by Letterman referred to above and preserved at St. Louis. We have what seems to be the same as Small's *B. cassinifolia* from Paradise Key in the Everglades of Florida, from Mosquito Inlet and St. Marks, Florida, and from near Bainbridge, Georgia. This last is a shrub growing in moist soil. These Florida specimens have slender glabrous pedicels and rounded calyx-lobes.

I think you ought to be able to find this plant near Opelousas. If not, I should think you could include it in your Flora on the strength of Letterman's specimen in New York.

Of *B. lycioides* we have from Louisiana only your Wakefield specimen and we should have more of it and know more about the distribution of this tree in the state. I think it must be common in western Louisiana.

141

February 15, 1917.

Your unnamed *Vitis* No. 9, Richmond Parish, June 1909, is *V. palmata*. This seems common in western Louisiana as Palmer got it at Monroe and Natchitoches. I suppose you have Palmer's specimen No. 8006, *V. rupestris* from Natchitoches, June 1915.

I am sorry to hear that there is another den of *Tilias* in western Louisiana for I fear it is filled with trouble. I suppose you will pay a visit there and I shall be glad to hear of the results.

142

February 23, 1917.

Do we know enough about *C[arya] leiodermis* and have we ever had fruit from more than one tree? Except by the color of the young leaves and by the much thicker husk of the fruit can *leiodermis* be distinguished from *callicoma?* Are you sure that the young leaves of *leiodermis* are not red or sometimes red? We ought to have a great deal more fruit of these two Hickories. Even if the distinctive characters hold good might they not better be considered varieties of one species? Why cannot our unknown Winnfield Hickory be *leiodermis*, of which we have no very young leaves?

143

April 9, 1917.

Biloxi is a wonderful place for Live Oaks and I wish you had been there with us. There are two very distinct forms, one with young leaves nearly grown and pale and slightly pubescent on the lower surface. These trees are like the one which we collected at Springfield. The second form is a tree still covered with last year's leaves which are dark green and very lustrous on the upper surface, coated below with thick white tomentum, strongly revolute and very conspicuously reticulate-venulose. These trees were not in bloom and have lost none of their old leaves. This second form was what I supposed was the typical *Quercus virginiana*. We saw nothing like it in Louisiana. It would be strange, however, if it did not extend into the southeastern part of the state and I should expect it at Slidell. Have you ever been there?

I understand that your Live Oaks at New Orleans are green and glabrous on the lower surface and I wish you would dry me some specimens showing their present condition. I very foolishly omitted to do this and in this herbarium there is only one specimen of *Q. virginiana* collected by me in western Louisiana many years ago. I do not find in our Texas material specimens with leaves as thick and tomentose as those on the trees of Biloxi but what appear to be a good many intermediate forms. It is evident that *Q. virginiana* has been shamefully neglected.

That curious White Oak which we found in the road from Springfield

seems to agree with Michaux's *Q.[uercus] alba repanda* which is a good name for it. It would be interesting to get good leaves and fruit from this tree which seems to be exceedingly rare.

We are having today what appears to be the severest snow storm of the winter and I wish I was back in some comfortable place like Opelousas, although I daresay Ames does not share this opinion. I will write again in a few days as soon as I get things a little in order. I think we had a wonderfully good trip this year. I can't have too many Live Oak specimens from different trees.

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April 11, 1917.

T. W. Adams, Greendate, Canterbury, is the name and address of the New Zealand man who cultivates Conifers and Oaks so successfully and apparently has a wonderful collection of trees. I wonder if your people know him.

I have a note that *Pinus glabra* grows on the Amite River. Did you supply this information and, if so, can you give me the exact locality where you found the tree? This must be the extreme western limit of its distribution.

I understand that the only place where you have found *Kalmia latifolia* in Louisiana is in Washington Parish. If so, this is probably its western limit and the talk in my Manual of its occurring in western Louisiana and southern Arkansas must be incorrect; at any rate we have no specimens here from that region.

In the March issue of Torreya which arrived this morning there is an article by Wilbur R. Mattoon of the Forest Service on the extension of the range in Louisiana of *Pinus caribaea*. According to him there are pure stands of this tree covering mile after mile along the New Orleans Great Northern Railroad, and that logging and turpentine operations are carried on there by several large companies. He observed it between Slidell and Covington. From Covington to Hammond he found it confined to ponds and along streams, and spread over large areas of flat lands further east. About Hammond he noticed it quite common in young stands and scattered groups. This was the most western point this man visited. He says that "its occurrence south of Hammond along the Illinois Central right-of-way suggests the high probability that it occurs to the north and to the west doubtless as far as the natural barriers formed by the extensive outlying swamp and overflow lands of the Mississippi River." He says, — "The region, it would seem, affords an excellent opportunity for some one to look for a further extension of the western limit of this interesting and very valuable commercial Yellow Pine." How about this, and if it does grow at Hammond how did we happen to miss it? This seems to be a thing to look into. I will try and get some of Mattoon's specimens, but as Hammond is of easy access from Louisiana you will no doubt have an opportunity to verify his observations.

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April 13, 1917.

Was it *Ilex cassine myrtifolia* or *Ilex lucida* which you said you had not been able to find in Louisiana? We have a specimen of *Ilex lucida* from you, your Pearl River No. 81, no date, with *Ilex Dahoon* on the label. In our herbarium I do not find any *Ilex cassine myrtifolia* west of Alabama. I saw a plant of *Ilex cassine* (Dahoon) growing in the lake at Avery Island but failed to take a specimen. We have no Louisiana specimen of this tree. It does not seem to be anywhere very common, and I should like to know about its distribution in Louisiana and to get Louisiana specimens if possible.

Ilex lucida is common at Biloxi.

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April 16, 1917.

Is the *Tilia* by the river (the tree I did not see) from which you collected this sprig the same as your 2532 (3 Lake Charles) of May 21, 1916? Your 2530, June 1, 1915, from the Mills Place seems the same. If these are all one species *T. rhoophila* as a Louisiana tree will have to disappear, and we should have to consider that the young branchlets of *T. ambigua* are sometimes pubescent and that the pubescence of the leaves of this tree sometimes becomes brown before the end of the summer.

Tilia Cocksii. I understand that your 4040 and 4054 are from the tree at Avery Island which you showed me. If this is true it would seem that there is no way of really learning anything about these southern Linden trees except by visiting them every day from March 15th to September 1st. My last visit shows that there is no use trying to do anything with them worth while with only herbarium specimens gathered twice a year to depend on.

The *Carya* by the roadside near Loranger with slender branchlets and stellate pubescent young leaves and evidently small buds may be some form of *C. alba* but I think you should try and get the fruit. These trees seem to be the only strange-looking Hickories we saw this year.

As I understand it *C. callicarpa* becomes *C. leiodermis*, *C. leiodermis* becomes a variety, and *C. ovalis subglobosa* becomes *C. leiodermis*, which is something gained.

I enclose a bit of my specimen of the Winnfield Hickory which does not look like what you showed me. Is it possible that my specimen is *C. leiodermis*. What seems to be the same tree grows at Natchez. I think it desirable to investigate Winnfield in the autumn. There is that comparatively smooth *Bumelia* from Avery Island which needs further investigation. Can you manage that?

Don't you want to lend me the fruiting specimens of the new Oak with rhombic leaves which you showed me the other day? I am afraid that we shan't be able to get fruit of this tree this autumn owing to spring frosts.

[*To be continued*]